



INTELLECTUAL PROPERTY  
402-391-4448

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August 20, 2004

Commissioner for Patents  
Box: 1450  
Alexandria, VA 22313-1450

RE: APPLICATION SERIAL NO. 10/718,126 of NIKOONAHAD ET AL.,  
FILED ON BEHALF OF KLA-TENCOR;  
PUBLICATION US2004/0150820 A1  
WHICH 126 APPLICATION CLAIMS BENEFIT OF PROVISIONAL  
APPLICATION SERIAL NO. 60/429,441 FILED 11/26/02.

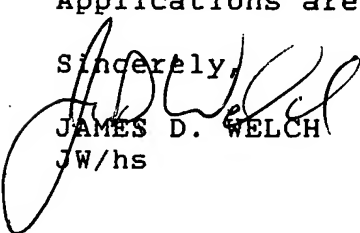
Dear Sir;

My Client has become aware of the identified Application.

My Client wants to make sure that the Examiner is aware of the Application of Woollam et al., Serial No. 10/376,677 which Claims Benefit of Provisional Application Serial No. 60/427,043 which was Filed 11/18/02. It is believed that the 126 Application Claims material similar to that disclosed in the 043 Provisional Application of Woollam et al. In particular note that said 043 Provisional Application Filing Date of 11/18/02 predates the 441 Provisional Application Filing Date of 11/26/02.

Service of this letter has not been made on the Attorney for the 126 Application, as the Woollam et al., 677 and 043 Applications are not published and remain confidential.

Sincerely,

  
JAMES D. WELCH  
JW/hs

CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT THIS TRANSMITTAL IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE WITH SUFFICIENT POSTAGE FOR FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO THE COMMISSIONER FOR PATENTS, BOX: 1450, ALEXANDRIA VA. 22313-1450 ON THE DATE INDICATED BELOW.

  
JAMES D. WELCH

8/19/04  
DATE



Commissioner for Patents  
Washington, DC 20231  
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
60/427,043	11/18/2002		80		2		

JAMES D. WELCH  
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*beat 11/26/2002*

CONFIRMATION NO. 3174

FILING RECEIPT



\*OC000000009381708\*

Date Mailed: 01/16/2003

Receipt is acknowledged of this provisional Patent Application. It will not be examined for patentability and will become abandoned not later than twelve months after its filing date. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

**Applicant(s)**

John A. Woollam, Lincoln, NE;

If Required, Foreign Filing License Granted: 01/15/2003

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**\*\* SMALL ENTITY \*\***

**Title**

Controlling ambient atmosphere during investigation of sample therewithin using electromagnetic radiation

**LICENSE FOR FOREIGN FILING UNDER  
Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

CONTROLLING AMBIENT ATMOSPHERE DURING INVESTIGATION OF SAMPLE  
THEREWITHIN USING ELECTROMAGNETIC RADIATION

TECHNICAL FIELD

The disclosed invention relates to investigation of samples using electromagnetic radiation, and more specifically to the use of ellipsometer and the like systems to monitor the effects of controlled atmospheric ambients thereupon.

BACKGROUND

It is known to investigate samples with electromagnetic radiation. It is further known to place samples in chambers in which the atmospheric ambient is controlled during said investigation. For instance, where Ultraviolet range wavelengths are utilized it is typical to evacuate a chamber in which is present a sample, or to purge it with, for instance, nitrogen or argon, in order to avoid the UV absorbing effects of oxygen and water vapor and the like.

While the present disclosure includes use of such as chamber evacuation and purging with nitrogen and/or argon etc. where other bases exist to establish Patentability, (such as electromagnetic radiation developing and monitoring systems), the primary foci of this Disclosure are to disclose:

that effective ambient controlling Chambers can be of single or multiple region construction; and

that while the ambient in a chamber region can be vacuum or comprise nitrogen and/or argon, said ambient can also be caused to comprise a component with which said sample will potentially react. Where the latter is the case, sample reaction can be monitored by changes in electromagnetic radiation caused to interact with said sample.

It is noted that Pending Patent Application Serial No. 10/199,536 discloses application of a standard shape objects, (eg. spheres and cylinders etc), in a material deposition chamber, which standard shape objects can be monitored by electromagnetic radiation during, for instance, coating depositions thereonto during similar deposition onto nearby odd shaped objects. The present invention extends the concept of, (while performing investigation of an object with electromagnetic radiation), controlling an ambient inside a Chamber so as to achieve deposition of material onto the surface of said object, to the controlling an ambient in a chamber in which is a sample to, for instance, effect and monitor change, (eg. degradation), of said sample as a result of the presence of said ambient.

One specific use of a Multiple Chamber System is to provide a Sample containing Chamber in which reactive gas can be caused to be present, which reactive gas would best not be allowed contact with ellipsometer system components. Particularly where UV wavelengths are utilized, the ellipsometer component containing Chambers can be separately evacuated or purged with such as nitrogen and/or nitrogen.

#### DETAILED DESCRIPTION

Fig. 1 demonstrates an effective Multiple Region Chamber (1). The Multiple Region Chamber (C) comprises a Sample System containing Region, to which is mounted a Source (PSG) and Detector (PSD) of electromagnetic radiation. Note that Windows (AC1) and (AC2) separate the Sample System containing Region from the Source (PSG) and Detector (PSD) Regions. The atmosphere in the region of the Sample System (SS) and that in either of the Source (PSG) and Detector (PSD), it should be appreciated, can be controlled to be the same or different. That is, the Source (PSG) and Detector (PSD) and the Sample System (SS) containing Chamber can be considered to comprise separate Chambers, or separate regions of a Chamber in which the atmospheric ambient therewithin can be separately controlled. Fig. 1 also indicates "Ambient Control Mean" on each of the the Source (PSG) and Detector (PSD) and the Sample System (SS) containing Chambers. Said means are to be considered to be functionally capable of evacuating and/or entering and/or or purging gas.

Fig. 2 shows an Ellipsometer System contained completely inside a Single Chamber (C). Shown are a Source of Electromagnetic Radiation (LS), a Polarizer (P), a Compensator (C) a Stage for supporting a Material System (MS), Reflection Path Compensator (C'), Analyzer (A) and Detector (DET), and Transmission Path Compensator (C''), Analyzer (A) and Detector (DET). In practice all said Elements except the Source (LS) and a Detector (DET), (and a Material System (MS) to investigate), can be present or not to effect various types of Reflectometer, Spectrophotometer, Ellipsometer, (eg. Rotating Analyzer, Rotating Polarizer, Rotating Compensator etc.) Systems.

#### PRELIMINARY CLAIMS

1. A system for investigation samples utilizing electromagnetic radiation comprising multiple chambers, each of said chambers comprising means for controlling the ambient atmosphere therewithin to be the same or different than is present in the other chambers, said system further comprising means for providing a beam of electromagnetic radiation and causing it to interact with a sample system then be detected.
2. A method of investigating the effect of atmospheric components on a sample comprising the steps of:

a) providing a system for investigation samples utilizing electromagnetic radiation comprising multiple chambers, each of said chambers comprising means for controlling the ambient atmosphere therewithin to be the same or different than is present in the other chambers, said system further comprising means for providing a beam of electromagnetic radiation and causing it to interact with a sample system then be detected;

b) placing a sample into one of said chambers;

c) causing said means for providing a beam of electromagnetic radiation to provide a beam of electromagnetic radiation and direct it to interact with a sample system present in one of said chambers, then enter said detector and be detected.

3. A system for investigation samples utilizing electromagnetic radiation comprising a single chamber, said chamber comprising means for controlling the ambient atmosphere therewithin, said system further comprising in said chamber means for providing a beam of electromagnetic radiation and causing it to interact with a sample system then be detected.

4. A method of investigating the effect of atmospheric components on a sample comprising the steps of:

a) providing a system for investigation samples utilizing electromagnetic radiation comprising a single chamber, said chamber comprising means for controlling the ambient atmosphere therewithin, said system further comprising in said chamber means for providing a beam of electromagnetic radiation and causing it to interact with a sample system then be detected.

b) causing said means for providing a beam of electromagnetic radiation to provide a beam of electromagnetic radiation and direct it to interact with a sample system, then enter said detector and be detected.

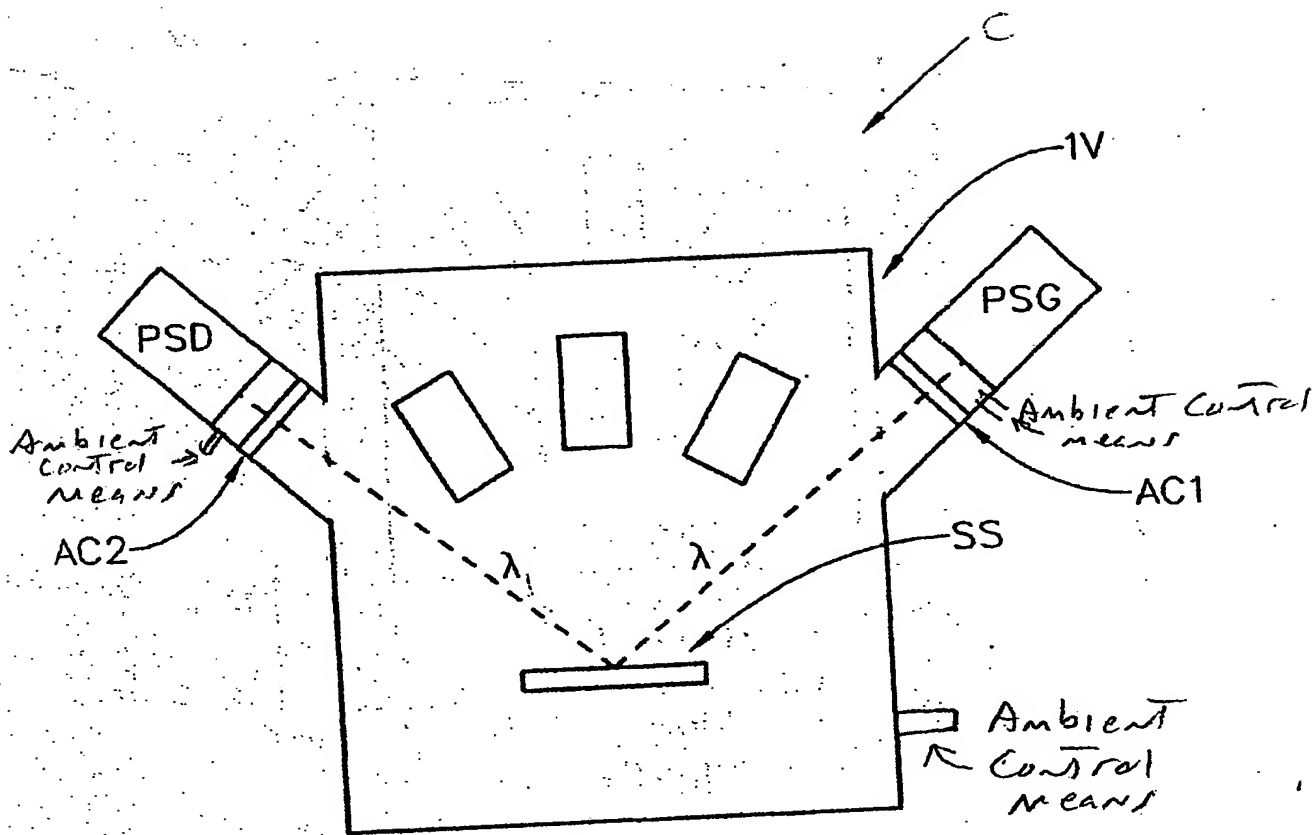


FIG: 1

C ↙

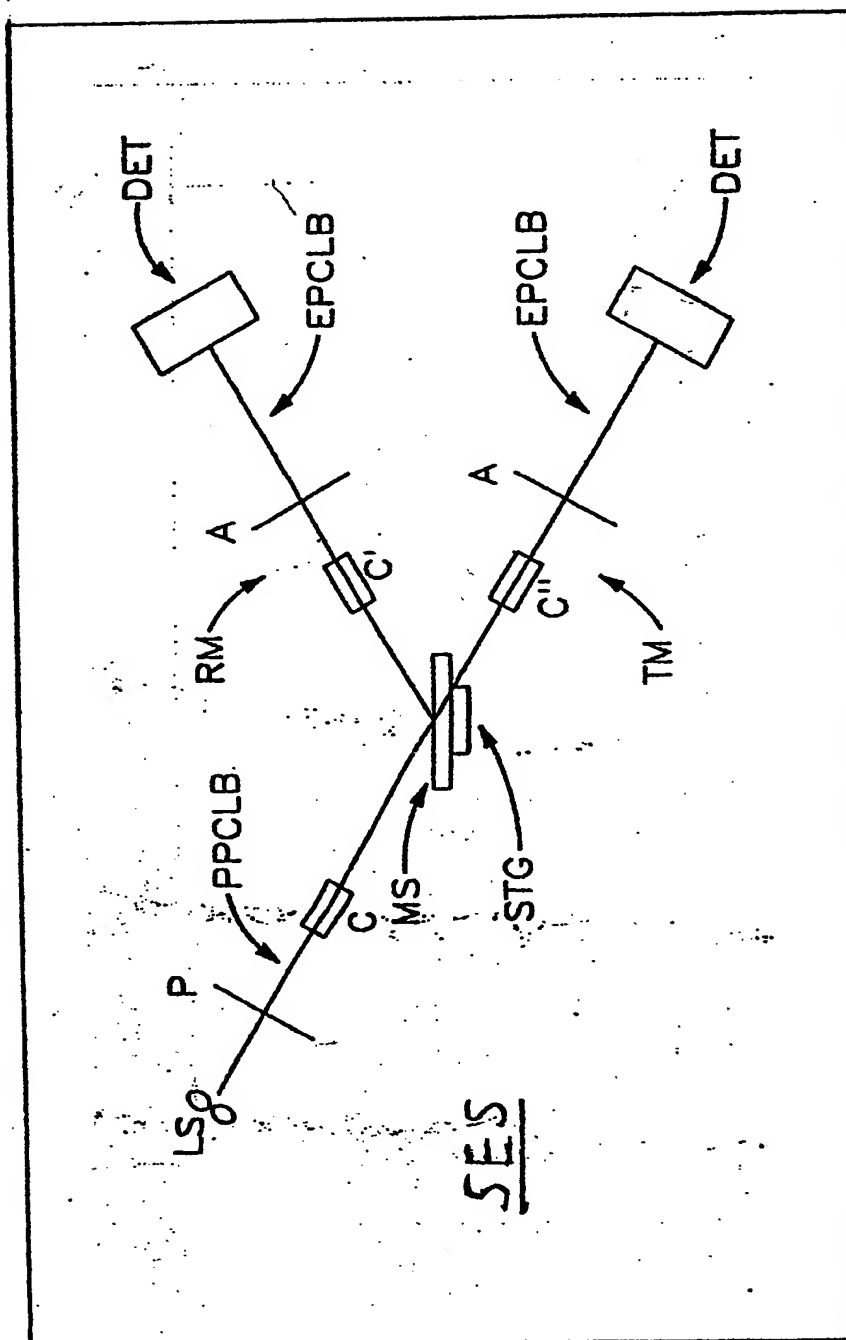


FIG. 2